

REMARKS

Claims 1, 8, 9 and 15 have been amended. Therefore, claims 1-20 are pending in the application. Reconsideration is respectfully requested in light of the following remarks.

Telephone Interview Summary

In a telephone interview between the Examiner and Joel Stevens on July 27, 2007, the amendments made to claim 1 were discussed. In particular, Applicants explained that claim 1 is particularly directed towards a method for switching from previous file system data of the production database to the storage checkpoint file system data (which had been updated via loading new data to the database clone). Applicants pointed out that the cited art switched the entire controlling application (and corresponding database) in the event of a failover or application update and did not switch file system data of the checkpoint to be the file system data of the production database (the same production database from which the checkpoint was made). For example, as discussed in the interview, this procedure is described in paragraph [0043] of the present application. As described there:

The database may be shut down, the checkpoint unmounted, the production database shut down, and the primary file system unmounted. The checkpoint may then be switched to be the primary file system. Once that is done the primary file system has the image of the checkpoint; the checkpoint gets promoted to the primary file system. Then **the production database** may be restarted. (Emphasis added)

Thus, as described in the specification, the **same production database** (not the database clone) uses the updated file system data of the checkpoint. Further details can be found in paragraphs [0034], [0045], [0046], [0051], and [0016].

Additionally, Applicants noted that the cited art taught updating of the applications and not loading new data into the database clone as required by the independent claims (see paragraph [0023]).

After presenting and discussing these points, the Examiner indicated that a new search and consideration would be required. Applicants have provided further arguments and explanations regarding the points made in the telephone interview below.

Section 103(a) Rejection:

The Examiner rejected claims 1-3, 5-11, 13-17 and 19-20 under 35 U.S.C. § 103(a) as being unpatentable over Moore et al. (U.S. Publication 2003/0092438) (hereinafter “Moore”) in view of Lomet (U.S. Patent 6,578,041), and claims 4, 12 and 18 as being unpatentable over Moore in view of Lomet and further in view of AAPA (Applicant Admitted Prior Art). Applicants respectfully traverse these rejections for at least the following reasons.

In light of the extensive arguments and responses provided in the previous Office Actions, Applicants have provided a concise argument below regarding the cited art and the present claims to illustrate distinctions that have not been appreciated by the Examiner.

Claim 1 requires that a refresh mechanism generates a storage checkpoint of file system data of a production database, and that a database clone be generated whose data comprises data from the storage checkpoint. New data is loaded into the database to update the storage checkpoint (which is file system data). During loading of new data, the original production database is available for access by users. Essentially, the database clone allows new data to be loaded without taking the production data base offline, and then switching the updated checkpoint (which includes the newly loaded data) to be the file system data for the production database. Thus, the file system data of the original production database is replaced with the file system data of the updated checkpoint. Moore in view of Lomet fails to teach or suggest this switching from previous file system data of the production database to the updated storage checkpoint to be the file system data for the production database.

To the contrary, Moore teaches a system with two controllers which both have respective databases. A checkpointing service is used to update the secondary controller's database with changes made to the primary controller's database since the last checkpoint. If a failover occurs, the secondary controller (which is an application and a database) may be used as the primary controller. When this occurs, the original controller is no longer involved (or the first database), and the secondary controller (with the replica database) acts as the primary controller. Thus, the controllers may stay up to date and may act as a highly available controller. Moore nowhere discloses that a storage checkpoint of the file system data of the production database is created, that the storage checkpoint is updated by new data being loaded via a database clone, and that the storage checkpoint is switched to be the file system data for the production database. More specifically, Moore especially does not teach or suggest that the file system data of the original database is switched from previous file system data to the file system data of the replica database. Instead, as described above, the entire controller is switched (which includes a new application and a new database). Thus, Moore is essentially unrelated to the present claim limitations which relate to switching of the file system data for a production database. Nor is Lomet, whether considered alone or in combination with Moore, relevant to this aspect of Applicants' claimed invention.

Note that claim 1 does not recite switching to a new database. Instead, it is the underlying file system data that is switched. The production database is still the same original production database, but with its underlying file system data switched to the updated storage checkpoint. This is clearly distinct from the combined references which, as noted by the Examiner, teach switching to a new database on a different controller in case of a fault or failure.

Finally, Moore in view of Lomet fails to teach loading new data to the database clone, wherein said load updates the storage checkpoint, and wherein the production database is available for access during said load. The Examiner relies on paragraph [0023] to teach this feature and states that "upgrading to a 'new application' necessitates loading new data". Applicants agree that upgrading an application generally

requires loading new data; however, loading new data onto some memory medium (e.g., the one storing the application) is not the same as **loading new data to the database clone, wherein said load updates the storage checkpoint**. Moore does not teach or suggest this feature, nor is it inherent. For example, in most cases, an application which may use a database may be upgraded without modifying the data in the database. As a specific example, a web application, which uses a database of credit card numbers and names, can be upgraded without modifying the database. Clearly, the credit card numbers and names are not required to change if an application that accesses that information is updated. In other words, databases that are accessed by applications are not necessarily changed (and generally are not) when the applications change. As another example, multiple applications may access the same database. Any of these applications may be changed or modified without modification of the database. Therefore, as one skilled in the art understands, modification of an application does not necessarily mean that new data is loaded into the database that is accessed by the application.

The Examiner further interpreted the term ‘database clone’ to be a ‘clone that is associated with a database’. Applicants submit that the term ‘database clone’, as one skilled in the art understands, means ‘a clone of a database’, which itself is a database. Updating an application that accesses a database is not loading new data into a database clone.

For at least these reasons, the rejection of claim 1 is not supported by the cited art and removal thereof is respectfully requested. Independent claims 8, 9 and 15 include limitations similar to claim 1, and so the arguments presented above apply with equal force to these claims, as well.

Applicants also assert that numerous ones of the dependent claims recite further distinctions over the cited art. However, since the rejection has been shown to be unsupported for the independent claims, a further discussion of the dependent claims is not necessary at this time.

CONCLUSION

Applicants respectfully submit that the application is in condition for allowance, and prompt notice to that effect is respectfully requested.

If any fees are due, the Commissioner is authorized to charge said fees to Meyertons, Hood, Kivlin, Kowert, & Goetzel, P.C. Deposit Account No. 501505/5760-12400/RCK.

Respectfully submitted,

/Robert C. Kowert/
Robert C. Kowert, Reg. #39,255
Attorney for Applicants

Meyertons, Hood, Kivlin, Kowert, & Goetzel, P.C.
P.O. Box 398
Austin, TX 78767-0398
Phone: (512) 853-8850

Date: July 30, 2007